ACENTECH

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July 15, 2020

Mr. Kevin Sheehan
Greatland Realty Partners
101 Federal Street, 16th Floor
Boston, MA 02110

Subject: **Community Noise Evaluation**
1040 - 1050 Waltham Street, Lexington, MA
Acentech Project No.: J632885

Dear Kevin,

This letter provides a summary of the background noise survey we have conducted at 1040 – 1050 Waltham Street in Lexington, Massachusetts. We have measured the background (or ambient) sound pressure level for a period of 12 days at three property line locations. We have compiled the data in order to determine the minimum background sound levels which shall be used to determine the project's noise limits. The details are provided below.

SOUND LIMITS

PROJECT SPECIFIC SOUND LIMITS

We understand that Greatland Reality Partners has signed a Memorandum of Understanding (MOU) with the Town of Lexington which requires that, "between the hours of 10:00 pm to 6:00 am, normal operations (from the project) will not exceed 5 dBA above the established ambient noise levels at the boundaries of lots with residential dwellings. We assume that the MOU will therefore define the night noise limit and that limits for day will be as given below.

TOWN OF LEXINGTON NOISE ORDINANCE

The Town of Lexington noise ordinance is given in Chapter 80, "Noise Control" of the Town's General Bylaws. It states that excessive noise is the condition resulting when: "a broadband sound source raises the noise level by 10 or more dBA above the ambient noise; or a tonal sound source raises its octave band noise level by three decibels or more above the adjacent octave band levels". Again, these threshold levels are identical to those required by the State. We have assumed that these requirements will apply to day and evening periods, given that the project specific limit between 10:00 pm to 6:00 am has been defined in the MOU as noted above.

AMBIENT SOUND SURVEY

We have conducted the ambient sound survey from 2:00 pm on June 25, 2020 through 2:00pm on July 7, 2020. During this twelve day period we measured the A-weighted ninetieth percentile sound pressure level (L_{90})[1] on an hourly basis 24 hours per day. Instrumentation, and measurement locations are given below.

[1] L90, the ninetieth percentile sound pressure level, is the level exceeded for 90% of the measurement time period. It is generally used as a measure of the ambient (or background) sound level. This descriptor is approved by the Massachusetts Department of Environmental Protection (MassDEP) as the measure of background sound for compliance with State noise guidelines.

INSTRUMENTATION

We used a Type 1 sound level meter (SLM) in accordance with IEC 61672-1. The SLM was factory-calibrated to National Institute of Standards and Technology (NIST) traceable sources within the previous 12 months; the laboratory calibration certificate will be provided upon request. The SLM was also field-calibrated before and after the start of the survey.

The SLM was set to slow response, and recorded L_{90} (ninetieth percentile) sound pressure levels (SPL) in one hour increments in octave-bands with center frequencies between 31.5 and 8,000 Hz. The equivalent continuous (L_{EQ}) A-weighted SPL and unweighted (dBZ) octave-band L_{EQ} was also recorded for information and this data can be provided upon request. The microphone was located at the site at a height of 5 feet above the ground, and provided with a windscreen.

MEASUREMENT LOCATION

Figure 1 shows the locations of the ambient sound monitoring instrumentation. Figure 2 shows the Acentech SLM as positioned at Location #1 on the site. The microphone was attached to a tree at a nominal height of 5 feet above the ground. The SLM was housed in a weatherproof case and locked in place. The SLM was not be located within 5 feet of any large vertical surface such as a solid fence or a building façade. Figures 3 and 4 show the SLM at Locations #2 and #3, respectively.

DATA COMPILATION/PROJECT LIMITS

We compiled the L_{90} sound data at the completion of the survey period. We have graphed the L_{90} values for all three locations as shown in Figure 5.

We have grouped the L_{90} data into the following time periods: day (6:00 am to 7:00 pm), evening (7:00 pm to 10:00 pm), and night (10:00 pm to 6:00 am). We have determined the minimum and maximum L_{90} sound levels for day, evening, and night periods as given in Tables 1 through 3, respectively.

As defined above, the 1040/1050 Waltham Street project noise level limits are the minimum hourly L_{90} plus 10 decibels for the daytime and evening periods, and the minimum hourly L_{90} plus 5 decibels for the night period. These limits vary by measurement location and are noted in the last row of Tables 1 through 3.

TABLE 1: Summary of Day (6:00 am to 7:00 pm) L_{90} Sound Levels in dBA

	Location #1	Location #2	Location #3
Minimum	39	39	41
Maximum	64	59	55
Minimum + 10 dB	**49 dBA**	**49 dBA**	**51 dBA**

TABLE 2: Summary of Evening (7:00 pm to 10:00 pm) L_{90} Sound Levels in dBA

	Location #1	Location #2	Location #3
Minimum	41	40	41
Maximum	54	52	52
Minimum + 10 dB	**51 dBA**	**50 dBA**	**51 dBA**

TABLE 3: Summary of Night (10:00 pm to 6:00 am) L_{90} Sound Levels in dBA

	Location #1	Location #2	Location #3
Minimum	35	34	36
Maximum	53	55	55
Minimum + 5 dB	**40 dBA**	**39 dBA**	**41 dBA**

We have conservatively selected the lowest of the three locations as the limit for the entire project as summarized in Table 2. These limits will be used in a subsequent evaluation of the building mechanical systems to demonstrate compliance with the Town of Lexington Noise Ordinance and the MOU between the Town of Lexington and Greatland Realty Partners.

TABLE 4: Proposed Project Noise Limits in dBA by Time of Day

Time of Day	Project Noise Limit, dBA
Day	49
Evening	50
Night	39

Please contact me at 617-499-8058 or mBahtiarian@acentech.com with any questions or comments.

Sincerely,
ACENTECH INCORPORATED

Michael Bahtiarian, INCE Bd. Cert.

CC: Kristen Murphy; Acentech
Matthew Formicola, SGA

FIGURE 1: Ambient Sound Survey Monitoring Locations

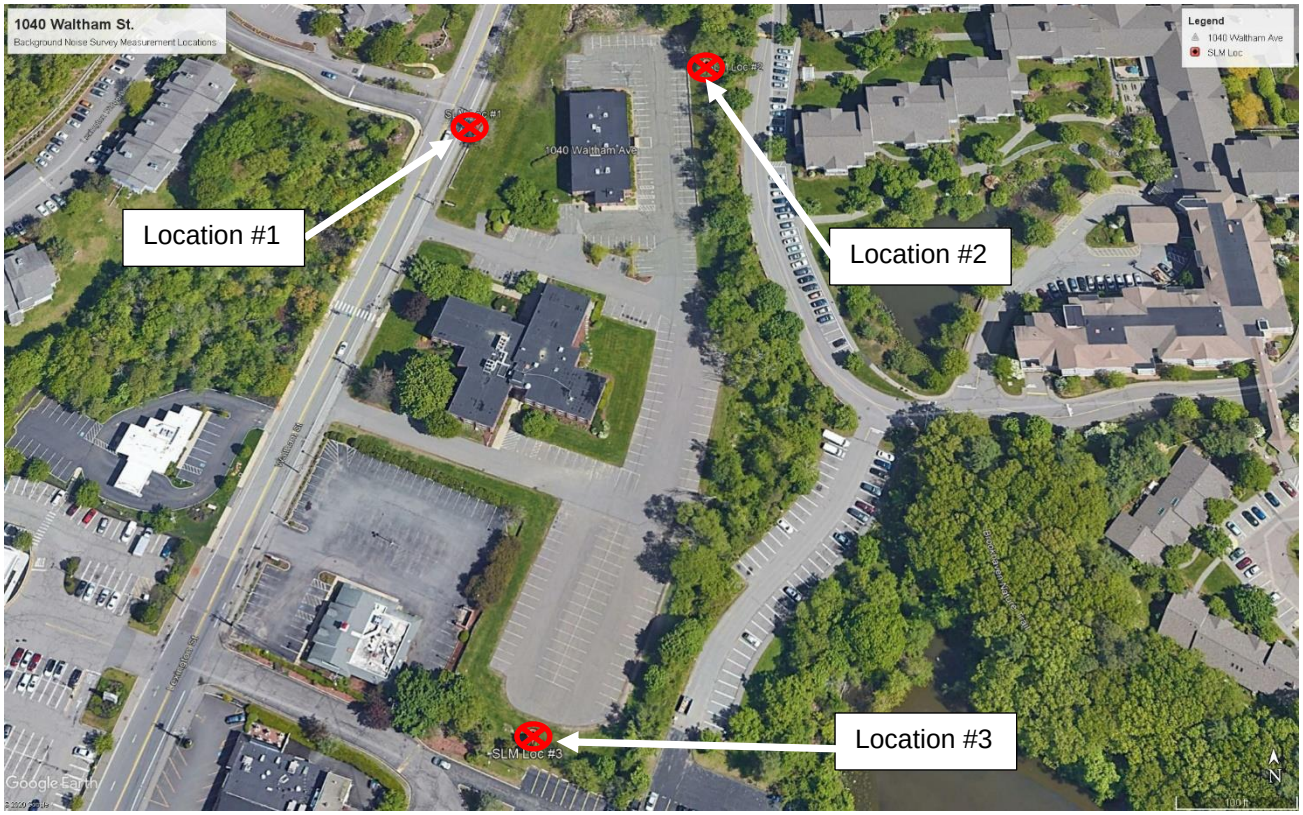
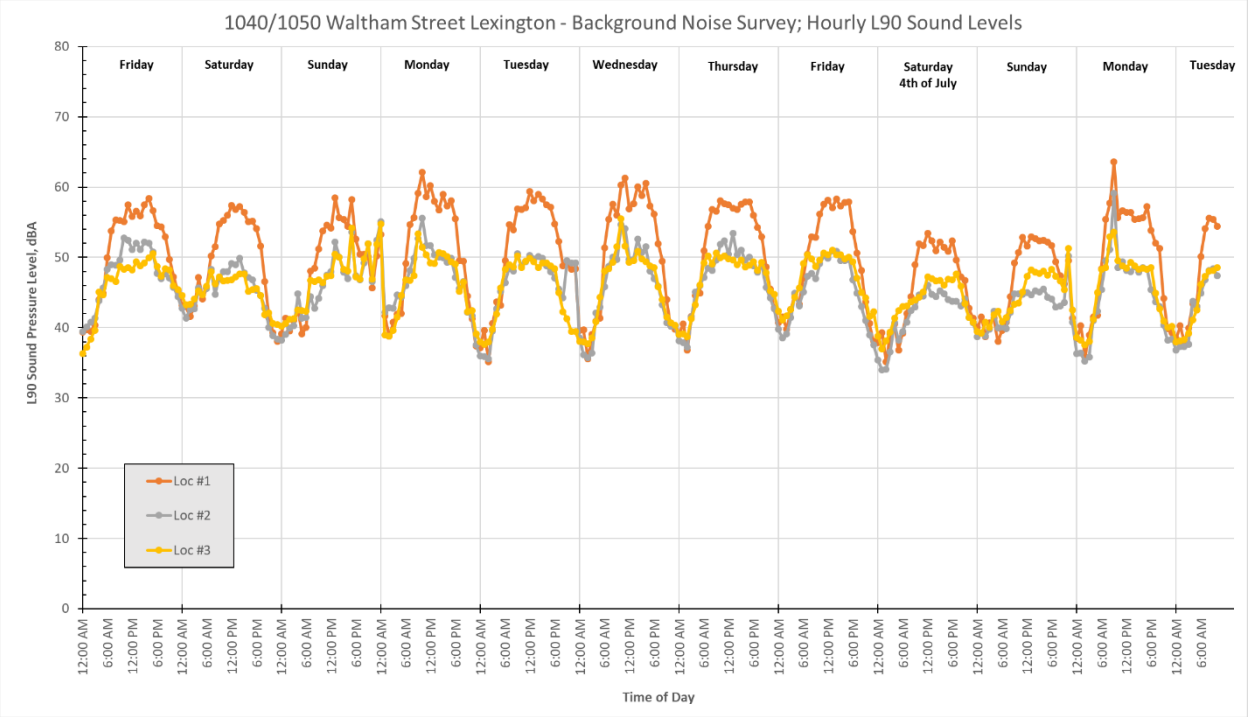


FIGURE 2: Location #1 Instrumentation as Located at the Site

FIGURE 3: Location #2 Instrumentation as Located at the Site

FIGURE 4: Location #3 Instrumentation as Located at the Site

FIGURE 5


1040/1050 Waltham Street Lexington - Background Noise Survey; Hourly L90 Sound Levels
Friday
Saturday
Sunday
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday 4th of July
Sunday
Monday
Tuesday
L90 Sound Pressure Level, dBA
Time of Day
Loc #1
Loc #2
Loc #3